

FACTORS INFLUENCING THE DEMAND FOR CERTIFIED RICE SEEDS IN EKITI AND ONDO STATES, NIGERIA

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ABSTRACT

The study identified and estimated factors influencing the demand for certified rice seeds in Ekiti and Ondo States. Structured questionnaire supplemented with oral interview were used to elicit information on 196 farmers randomly selected in the study area. Multiple regression and descriptive statistics were used for data analysis. Results showed that the included regressors: own price of certified seeds; distance travelled; size of the rice plot (ha); yield/ha and price/kg of certified maize seeds as substitute crop explained about 51% of the variations in the quantity of certified seed demanded at 50% level of significance.

KEY WORDS: Factors, Demand, Certified Rice Seeds.

INTRODUCTION

In Nigeria, rice has become an important household food item that commands higher value than any other grain crop in the Country. One tonne of rice worths about three times the value of other crops (Osundare 2008). For instance, a 'better life bowl' of rice sells for between ₦350 - ₦450 depending on the quality and variety while the same bowl of shelled maize sells for ₦100 - ₦120 in Ondo State, and even cheaper in Oyo State. Until recently, rice was widely regarded as a superior food commodity which was consumed mainly by city dwellers, the middle and high income groups in Nigeria.

The importance of rice in Nigeria's food economy has risen dramatically in the last two decades as a result of acute shortage in the supply of traditional food commodities. Before then, rice consumption was limited to festive occasions like easter, christmas and new year celebrations. However, increased national population; increased percent national income; rapid urbanization; changes in tastes and preferences, coupled with the availability of cheap, well processed and easy-to-prepare imported rice has made rice consumption a household menu eaten at least once in every three meals in Nigeria. The importation of par-boiled rice has also adversely affected domestic rice industry resulting in decrease in local production and increase in the prices of available rice commodity beyond the reach of low income earners.

In Nigeria, rice is among the least important cereal crops in terms of hectareage under cultivation and food crop output. Of the 75.7million hectares of crop lands in Nigeria, 1 million hectares were devoted to rice cultivation with the production of over 2 million tonnes (Aderinola, 1992). This production however fell short of total rice consumption of over 2.4million. In order not to deplete the nations foreign exchange earnings through continuous rice importation efforts need to be made by rice farmers to improve total factor productivity which can raise rice output (Oladeebo, 2006). To achieve this in a developing country like Nigeria with a large population of small scale farmers, two choices are available: adoption of technical improvements which can raise crop yields within existing small farm structures and the encouragement of large mechanized farms (Chianu, 2000). In view of the expensive nature of machines, unavailability of machines, their spare parts, servicing and maintenance experts and smallness of rice farms, the use of improved seeds coupled with improvement in cultural practices is a surer way to sustainable self sufficiency in rice production. This is because the biological innovations particularly certified seeds are land – saving and output – increasing.

Seed certification is the process by which a third party guarantees the quality of the seed by issuance of a certificate of fitness, certifying that all attributes of the parent seed are maintained through field and laboratory tests (Usman 1994). The seed must be distinct, uniform and stable. It is a cheap means of transferring technology, basic means of increasing crop yield and also fundamental to raising the efficiency of other agricultural inputs. This study therefore examined and estimated the factors influencing the demand for certified rice seeds among rice farmers in Ekiti and Ondo States.

RESEARCH METHODOLOGY

Data were collected from rice growers buying certified rice seeds through the use of structured questionnaire administered on 196 rice farmers randomly selected in Ekiti and Ondo States. Three local governments were randomly selected from the two agricultural zones in each state; three towns/villages were selected from each L.G.A. Ten percent of farmers growing certified rice seeds were randomly selected from the list made available by the staff of Agricultural Input Supply Company (AISC) and Agricultural Development Project (ADP) in each state. Descriptive statistics and multiple regression analysis involving Ordinary Least Square (OLS) were used for data analysis.

Model Specification and Analytical Technique

The model hypothesized to identify the factors influencing the demand for certified seeds of rice in Ondo and Ekiti States is presented by equation (1):

$$QR_{ij} = \beta_0 + \beta_1 PR_{ij} + \beta_2 PM_{ij} + \beta_3 DR_{ij} + \beta_4 FR_{ij} + \beta_5 YR_{ij} + EM_{ij} \dots \dots (1)$$

Where:

- QR_{ij} = Quantity of Certified rice seeds purchased by the i th grower in the j th year (kg);
- PR_{ij} = Price/kg of rice seeds bought by the j th grower
- DR_{ij} = Distance traveled by the j th grower to buy certified rice seeds;
- FR_{ij} = Size of the rice plot of the j th grower;
- YR_{ij} = Quantity of rice produced by the j th grower
- PM_{ij} = Price/Kg of maize seed bought by the j th grower (kg)
- EM_{ij} = Error term associated with collecting information from the j th rice grower.

The linear and double logarithmic functional forms of equation (1) were tried using the OLS technique. The evaluative criteria developed by Kmenta (1971) were used in choosing the demand equations for certified rice seeds in the study area.

RESULTS AND DISCUSSION

The estimated demand model for certified rice seeds hypothesized in equation (1) is presented in equation (2):

$$\begin{aligned} \text{Log } QR_{ij} = & 0.232 - 0.500 \log PR_{ij} + 2.90 \log PM_{ij} \\ & (0.833) \quad (0.604) \quad (0.079) \\ + & 0.250 \log FR_{ij} + 0.079 \log DR_{ij} + 0.17 \log YR_{ij} \dots \dots (2) \\ & (0.044) \quad (0.039) \quad (0.041) \\ R^2 = & 0.508; \quad F = 41.325; \quad DW = 1.74 \end{aligned}$$

Figures in brackets are standard errors of estimated coefficients.

The certified rice seeds demand model (equation (2) shows that the included regressors explained about 51% variations in the quantity of certified rice seeds demanded. The F – test showed that the two models were significant at 5.0% while the Durbin Watson test indicated the absence of auto-correlation in the residuals.

The t-test indicated that all the estimated coefficients of the regressors except $\log YR_{ij}$ were significant at 5.0%. The positive sign on the coefficients of all the included explanatory variables with the exception of

Log PR_j suggested that an increase in each of these variables would cause the quantity demanded of certified rice seeds to increase *ceteris paribus*. This suggestion is in conformity with economic theory. The negative sign carried by the coefficient of price/kg of certified rice seeds (log PR_j) conformed with the postulate of economic theory. It implied that the higher the own-price of certified rice seeds, the lower the quantity demanded, all other things remaining unchanged. However, the estimated coefficient of Log PR_j was not significantly different from zero at 5.0% level. The positive sign on the coefficient of Log YR_j suggested that the larger the expected output, the greater the quantity of certified rice seeds purchased.

Similarly, the positive sign on Log FR_j suggested that, the larger the farm size, the greater the quantity of certified rice seeds demanded while the positive sign on log DR_j implied that the farther the distance traveled to purchase certified rice seeds, the greater the quantity purchased. This is contrary to expectation. Tenable reason is that it is either the rice farmers pooled their resources together for collective purchase or bought in large quantities and stored for future use. However, the Farm Size (ha), price of maize and distance traveled contributed significantly to the quantity of certified rice seeds demanded. Equation (2) also shows that the price of certified maize seeds as substitutes to rice had a significant influence on the quantity of certified seeds demanded. The larger the price of maize seeds the larger the quantity of certified rice seeds demanded. With respect to elasticity, all the explanatory variables were inelastic with respect to Log PR_j.

It was found out that the coefficient of Log PM_j in equation (1) was elastic with respect to Log QR_j. This implied that a 1.0% increase in the price per tonne of maize seeds would cause quantity demanded of rice seeds to increase by 2.9% *ceteris paribus*.

CONCLUSION

Findings from this study indicated that rice farmers in the study area demanded for certified seeds of rice. This is a pointer to a virile rice industry in the nearest future. However, the fact that the own price of certified rice seeds (Log PR_j) was elastic is worrisome in view of the present economic liberalization and deregulation policy characterized by removal of subsidy on agricultural inputs. A rise in the price/kg of certified rice seeds resulting from increase in the cost of production of the seeds may have a serious effect on the demand for certified rice seeds.

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Osundare F.O and Aderinola E.A: Continental J. Agricultural Science 2: 21 - 24, 2008

Received for Publication: 03/06/2008

Accepted for Publication: 24/07/2008

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